



MEMO

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To: Ephraim King, Director, Office of Science and Technology, U.S. EPA

CC: Carol Rushin, Administrator, EPA Region VIII; Tina Laidlaw, Nutrient Standards Coordinator, EPA Region VIII

From: Director

Date: February 5, 2010

RE: Percent median household income as a means to establish a cost cap when variances to numeric nutrient standards are justified

The Montana Department of Environmental Quality (MT DEQ) believes that numeric nutrient criteria are a crucial element in the protection of state surface waters and their designated beneficial uses. For example, we adopted numeric nutrient standards on the Clark Fork River in 2002, and EPA has highlighted those standards in EPA nutrient-criteria development guidance documents. MT DEQ has invested nearly ten years of work into the development and refinement of numeric nutrient standards for Wadeable streams, and continues to refine those criteria as well as work on nutrient criteria for large rivers, lakes, etc. Through this work it became clear that scientifically-based criteria would in some areas of Montana be quite stringent, and therefore MT DEQ began considering means by which the criteria could be implemented in a more staged manner, allowing time for our communities to upgrade their waste water treatment while, concurrently, nutrient removal technologies improve and become less expensive. MT DEQ has crafted an approach specific to public municipalities that I believe will achieve, over time, the goal of cleaner water; however, there remains an issue related to our approach for which EPA has not yet provided a definitive response. The purpose of this memo is to solicit from EPA a response on this unresolved matter, which is detailed below.

MT DEQ realized that scientifically-derived numeric nutrient criteria would be quite stringent in some regions of Montana (e.g., 0.03 mg TP/L and 0.3 mg TN/L in the Middle Rockies ecoregion), and we began to explore implementation options for MPDES permit holders who would be required to meet the nutrient standards once they were adopted. The one viable option we identified, under state and federal law, was a temporary variance from the standards. Variances are allowed under federal statute (40 CFR 131.13), and EPA indicates that such variances are justifiable if meeting a water quality standard would result in substantial and widespread economic impacts to a community (*Interim Economic Guidance for Water Quality Standards*, 1995; referred to hereafter as the *EGWQS*). In 2006 we hired an independent consulting firm to review the *EGWQS* and other EPA economic-analysis guidance documents and approaches, and they concluded that the *EGWQS* was the most appropriate guidance for addressing implementation of numeric nutrient standards.

The *EGWQS* is unambiguous on some subjects, while silent on others. Specifically, it is clear that two test conditions must be met (an economic impact must be substantial and widespread) before a variance can be granted to a community. Also clear is the manner in which cost is calculated; “The second step is to calculate the total annual pollution control cost per household, which includes the cost of the project and existing pollution control costs.” (page 2-2, *EGWQS*). Thus, the *EGWQS* explicitly indicates that, for evaluation purposes, current annual expenditure for waste water is to be added to the proposed project’s annualized cost. In contrast, the *EGWQS* is completely silent on what the remedy should be if a community has demonstrated that substantial and widespread economic impacts would occur. The only hint as to what a remedy *might* be is found in Table 2-2 of the *EGWQS*, which is reproduced below along with a related table (Table 3) from the EPA document *Combined Sewer Overflows – Guidance to Financial Capability and Schedule Development* (1997).

Table 2-2
Assessment of Substantial Impacts Matrix

Secondary Score	Municipal Preliminary Screener		
	Less than 1.0 Percent	Between 1.0 and 2.0 Percent	Greater than 2.0 Percent
Less than 1.5	?	X	X
Between 1.5 and 2.5	✓	?	X
Greater than 2.5	✓	✓	?

- ✓ Community is not expected to incur substantial impacts as a result of the pollution control project.
- ? Interpretation will rely on the additional information presented by the State/discharger (i.e. the results of the “widespread” analysis). Communities falling exactly in the middle box should, depending upon their Municipal Preliminary Screener and Secondary Scores, move to an adjacent box.
- X The community will incur substantial impacts.

FINANCIAL CAPABILITY MATRIX
Table 3

Permittee Financial Capability Indicators Score (Socioeconomic, Debt and Financial Indicators)	Residential Indicator (Cost Per Household as a % of MHI)		
	Low (Below 1.0 %)	Mid-Range (Between 1.0 and 2.0%)	High (Above 2.0 %)
Weak (Below 1.5)	Medium Burden	High Burden	High Burden
Mid-Range (Between 1.5 and 2.5)	Low Burden	Medium Burden	High Burden
Strong (Above 2.5)	Low Burden	Low Burden	Medium Burden

What Table 2-2 and the *EGWQ*'s supporting text say is that if the total of current user wastewater fees plus additional fees associated with the upgrade (both annualized) were to exceed 2% of the community's median household income (MHI), then in most circumstances that community will incur substantial economic impacts (i.e., experience a high financial burden, per the similarly-constructed Table 3). Since the *EGWQS* is silent on what a state regulatory agency should do if a community has demonstrated substantial and widespread impacts, MT DEQ derived its own remedy. Logically, if a wastewater cost >2% MHI is generally considered by EPA to be a high financial burden, then clearly a variance granted to a community to prevent such hardship should be set to something < 2% MHI. From the matrices presented in tables 2-2 and 3 above, a nutrient standards variance cost-cap should probably fall between 1 and 2%.

In fall 2008 MT DEQ began monthly meetings with interested parties on this subject. These included participants from municipalities, wastewater engineering firms, environmental groups, and industries. Over the course of the meetings EPA Region VIII was consistently present, and EPA Head Quarters was directly involved on at least one occasion. MT DEQ, working with this group, made a number of changes to the components of the Secondary Score (see Table 2-2 above). Montana's modifications better reflect the impact of meeting water quality standards on *individuals*, with reduced emphasis on community money management; our modifications were well praised by EPA Head Quarters economist Tim Conner for being fair and appropriate. Meeting participants agreed upon the economic evaluation process, however the *remedy* — the cost cap — remained unresolved. We then examined a representative sample of current wastewater rates and found that larger Montana communities were usually paying far below 1% MHI, while smaller communities were (on average) below but much closer to 1% MHI. Meeting participants clearly articulated that whatever the remedy, they preferred a single, consistent approach for all communities — and I agree. Wastewater engineers in particular lauded the consistent endpoint approach as it would be very difficult for them to complete a preliminary engineering report for a wastewater upgrade if the ultimate endpoint was unknown, or could only be known very late in the regulatory process. By early 2009, the participants indicated that 1% of MHI was an acceptable cost cap for a variance from meeting nutrient standards.

It is important to note that the variance process only applies to numeric nutrient standards (e.g., total N and total P) and not to other water quality standards. As outlined, it would work something like this. In one scenario, a community may be paying the equivalent of 1.9% MHI and is now meeting National Secondary Standards¹, as well as heavy metal and toxicity-based ammonia water-quality based standards. If they demonstrated that meeting additional numeric nutrient standards would result in substantial and widespread economic impacts, they could receive a variance for TN and TP and MT DEQ would cap their nutrient discharges at current levels, since they already pay more than 1% MHI which is above the proposed cost cap. In another scenario, a community is currently meeting all National Secondary Standards and all applicable water-quality based standards, but is only paying 0.5% MHI for wastewater. To meet the numeric nutrient standards would require a significantly upgrade that equates to 3.5% MHI. They may very likely receive a nutrient standards variance (based on the substantial and widespread evaluation); if so, they would be expected to carry out wastewater upgrades up to 1% of their MHI in order to move towards the nutrient standards.

Again, the variance procedure in Montana (75-5-313, Montana Code Annotated) is specific to numeric nutrient standards and would allow a variance from numeric nutrient standards for up to 20 years, however the variance would be subject to re-justifications every five years. Thus, if a cost effective means to significantly lower nutrients in a wastewater discharge comes on the scene during the 20 year variance period, the permittee would be expected to install it (i.e., the justification for the variance would have changed). This assures that communities move steadily towards the nutrients standards as technology changes.

¹ The vast majority of Montana communities are currently meeting National Secondary Standards.

Obviously, 1% is at the low end of the range within which a cost-cap could be established if a nutrient standards variance were granted. Informal discussions with EPA Head Quarters in 2009 seemed to suggest that EPA would only approve a cost cap set at $\geq 2\%$ MHI; this appears to stem from EPA's prior experience with combined sewer overflows (CSOs). As far as we can ascertain, EPA's only prior use of the *EGWQS* process was in addressing the cost of upgrading CSOs in large urban areas (e.g., Boston). EPA's other guidance on the subject (*Combined Sewer Overflows – Guidance to Financial Capability and Schedule Development* {1997}) states that most CSO problems are concentrated in the northeast and Great Lakes regions — the most urbanized region of the country. We do not believe that these urbanized areas are appropriate comparisons to Montana. First, Montana is largely a rural state, with a small population (ca. 960,000) ranked 44th in the nation. Montana ranked 39th in the nation in per-capita income (2008 data), the bottom third, and, clearly, the lower the per-capita income, the more significant is the impact of increased cost for basic services such as sewer. (In contrast, the majority of northeast and Great Lakes states — where CSO issues are concentrated — are in the top third by per-capita income; for example Massachusetts, New York, New Jersey, Rhode Island, and Illinois.) If EPA really expects an increase to 2% of MHI in Montana communities where nutrient standards variances are granted, MT DEQ believes that our numeric nutrient standards process — which we have worked hard to develop — could be in jeopardy.

It should also be noted that in a number of circumstances pushing communities to pay $>2\%$ MHI for waste treatment will not necessarily solve the excess nutrient problem. In a state like Montana there is still a large nonpoint nutrient source component to address, which MT DEQ is working on, and there are the limits of practical wastewater technology. Depending on the engineer you speak with, current limits of practical wastewater technology are somewhere around 0.05 mg TP/L and 3 mg TN/L; if a receiving stream does not have substantial dilution potential, these end-of-pipe concentrations would still not meet many of our science-based criteria. Our seven largest communities have populations between 21,182 and 104,000, and in at least one of them (Missoula) our calculations indicate that the limits of practical wastewater technology would probably be achieved at an MHI of about 1.2%. All these factors highlight the fact that fixing CSO problems is not the same as fixing excess nutrient problems, and using the CSO experience as the sole point of comparison is inappropriate.

In closing , I would like EPA to provide me its position on our cost-cap remedy. Restated, for communities where substantial and widespread economic impacts would result from compliance with numeric nutrient standards, and a temporary variance is to be granted, MT DEQ proposes a flat, across-the-board cost cap — the same for all Montana communities — based on a % of their MHI. Our preferred percent MHI cap is 1%. Again, I want to emphasize that a consistent, flat approach to setting a cost cap when a variance is justified is preferred. And please consider Montana’s demonstrated commitment to numeric nutrient standards development, its pro-active stance in finding ways to implement the standards, and its unique socio-economic character.

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